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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,153	06/30/2005	Hajime Okura	P28124	4378
7055 7590 11/15/2007 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER ST CLAIR, ANDREW D				
ART UNIT		PAPER NUMBER		
4175				
NOTIFICATION DATE		DELIVERY MODE		
11/15/2007		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary

Application No.

10/541,153

Applicant(s)

OKURA ET AL.

Examiner

Andrew St.Clair

Art Unit

4175

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/30/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date 9/30/2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 6 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 6, the preamble of claim 6 recites a method yet depends from an apparatus claim. Normally a preamble is not accorded patentable weight. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). However the body of claim 6 incorporates substantial structural limitations all of which depend on claim 1 for antecedent basis, such that claim 6 cannot stand alone independent of claim 1. For instance, claim 6 has no step of “providing a heat suppression device” “providing a nonleak-type gas-gas heater reheater,” or “providing a adsorption tower.” Thus the only viable interpretation of the claim is that it is indefinite for improperly incorporating a method into an apparatus claim. (See MPEP 2173.05(p), “A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph. *IPXL Holdings v. Amazon.com, Inc.*, 430 F.2d 1377, 1384 (Fed. Cir. 2005); *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990).)

With respect to claim 7, the preamble of claim 7 recites a method yet depends from the apparatus of claim 3. Normally a preamble is not accorded patentable weight. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478,

481 (CCPA 1951). However the body of claim 7 incorporates substantial structural limitations all of which depend on claim 3 for antecedent basis, such that claim 6 cannot stand alone independent of claim 3. For instance, claim 7 has no step of “providing a thermometer” or “providing an exhaust gas duct.” Thus the only viable interpretation of the claim is that it is indefinite for improperly incorporating a method into an apparatus claim. (See MPEP 2173.05(p), “A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph. *IPXL Holdings v. Amazon.com, Inc.*, 430 F.2d 1377, 1384 (Fed. Cir. 2005); *Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990).)

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 6 and 7 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. See the above rejection, MPEP 2173.05(p): “Such claims may also be rejected under 35 U.S.C. 101 based on the theory that the claim is directed to neither a ‘process’ nor a ‘machine,’ but rather embraces or overlaps two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. *Id.* at 1551.”

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsube (JP 06-238127) in view of Hasegawa et al. (US 6,203,598) and in view of Shigaki (JP 05-293335).

With respect to claim 1, Katsube discloses an exhaust gas processing device comprising, in order from the upstream side of an exhaust gas flow direction, at least a heat recovery unit 1, an absorption tower 4, a mist eliminator 5 (heater 5 is considered to be a “mist eliminator” in that it is described as evaporating mist; paragraph 0013 “...this steamy type gas heater 5, by evaporating Myst in the gas concerned and drying gas.”), and a reheater 6 for circulating a heat medium with respect to the heat recovery unit arranged in a duct for exhaust gas discharged from a fire furnace. Katsube is ambiguous as to whether the heat exchanger components (1 and 6) are gas-to-gas or gas-to-liquid. Hasegawa et al. disclose a similar invention utilizing a gas-to-gas heat exchanger (col. 8, ln. 7-8; “heat recovery section of gas-gas heater...”) With respect to the recitation of “nonleak,” it is considered obvious and well known in the art that heat exchangers

are designed to prevent the leakage of heated and pressurized gases.) Therefore all the claimed elements were known in the prior art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the gas processing device of Katsube with the gas-to-gas heat exchanger of Hasegawa et al. because it is within the purview of one of ordinary skill in the art to modify known structure by substitution of one element for another known in the field to achieve a predictable result. Katsube also does not disclose a heat suppression device for suppressing dissipated heat from the reheater is arranged in an exhaust gas duct between the mist eliminator and the reheater. Shigaki does disclose a heat suppression device 33 arranged in the exhaust duct directly before the reheater 10. (paragraph 21, “in leakage of the thermal oil 17, or an outbreak of a fire, a steam blows off from the steamy exhaust nozzle 33;” element 33 is considered to be “in an exhaust gas duct between the mist eliminator and the reheater” in that it is in the path of the exhaust flow). Shigaki further discloses motivation to combine. (paragraph 21, “and the safety of a thermal circulation supply network is secured to it by this.”) It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the exhaust processing device of Katsube with the heat suppression device of Shigaki for the purpose of securing the safety of the apparatus.

With respect to claim 2, Katsube further discloses the claimed subject matter wherein a steam-gas heater 7 is provided. Katsube discloses the steam-gas heater following the reheater in the exhaust path, rather than the steam-gas heater in the exhaust gas duct between the mist eliminator and nonleak-type gas-gas heater reheater; Shigaki discloses the heat suppression device directly preceding the reheater rather than preceding a steam-gas heater. It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange

the steam-gas heater to be before the reheater in the exhaust path, and the heat suppression device to precede the steam-gas heater because non-critical rearrangement of parts is considered *prima facie* obvious. MPEP 2144.04, In re Japikse, 181 F.2d 1019 (CCPA 1950).

With respect to claims 3 and 4, Katsube in view of Hasegawa et al. in view of Shigaki further discloses the claimed subject matter wherein the heat suppression device in the exhaust gas duct between the mist eliminator and the reheater is a blow-off device. (paragraph 21, “in leakage of the thermal oil 17, or an outbreak of a fire, a steam blows off from the steamy exhaust nozzle 33...”)

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katsube (JP 06-238127) in view of Hasegawa et al. (US 6,203,598) and in view of Shigaki (JP 05-293335) as applied to claim 1, and in further view of Ochi et al. (US 6,506,348).

Katsube in view of Hasegawa et al. in view of Shigaki discloses all of the claimed subject matter except the absorption tower structure disclosed in claim 5. Ochi et al. discloses that structure (see fig. 2), namely: a circulation tank 11 for retaining of an absorption liquid, spray nozzles 14, 15 in respective regions, while an inlet duct (above element 3 in fig. 2) for introducing exhaust gas discharged from a combustion device such as a boiler in almost a horizontal direction and an outlet duct (proximate to element 5 in fig. 2) for discharging exhaust gas in almost a horizontal direction are provided above this circulation tank, an exhaust gas channel 12, 13 is provided between the inlet duct and outlet duct, a partition plate (sidewall of tower 12) stood in a vertical direction having an opening portion (below element 14 in fig. 2) at a ceiling portion side (ceiling of circulation tank 11) to divide this exhaust gas channel into two chambers of an inlet duct side and an outlet duct side is provided, and an ascending current

region 13 where exhaust gas introduced from the inlet duct flows upward and a descending current region 12 where exhaust gas flows downward toward the outlet duct after reversing at the opening portion of the ceiling side are formed by this partition plate, so that an ejecting absorption liquid slurry makes countercurrent contact with exhaust gas in the ascending current region and makes parallel-current contact in the descending current region. (col. 3, ln. 29-32; “an oxidation tank 11 supplied with an absorbent liquid in which an absorbent consisting of limestone is suspended (hereinafter called absorbent slurry)...”). It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the absorption tower of Ochi et al. for the absorption tower of Katsube in view of Hasegawa et al. in view of Shigaki because it is within the purview of one of ordinary skill in the to modify known structure by substitution of one element for another known in the field to achieve a predictable result.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew St.Clair whose telephone number is 571-272-3700. The examiner can normally be reached on Monday through Thursday, 8-5 Eastern Standard Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrence Till can be reached on 571-272-1280. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian D Nash/
Primary Examiner, Art Unit 3721

/A. S./
November 6, 2007